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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,628	09/16/2003	Philip Chu Wah Yip	SILA0003	1928

42640　　7590　　04/27/2007	EXAMINER	
DILLON & YUDELL LLP	TORRES, JUAN A	
8911 NORTH CAPITAL OF TEXAS HWY		
SUITE 2110	ART UNIT	PAPER NUMBER
AUSTIN, TX 78759	- 2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/663,628	YIP ET AL.
	Examiner	**Art Unit**	
	Juan A. Torres	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 March 2007</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-3,5-9,11-15,17 and 18</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,5-9,11-15,17 and 18</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 March 2007</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Drawings

The modifications to the drawings were received on 03/29/2007. These modifications are accepted by the Examiner.

In view of the amendment filed on 03/29/2007, the Examiner withdraws drawings objections of the previous Office action.

Response to Arguments
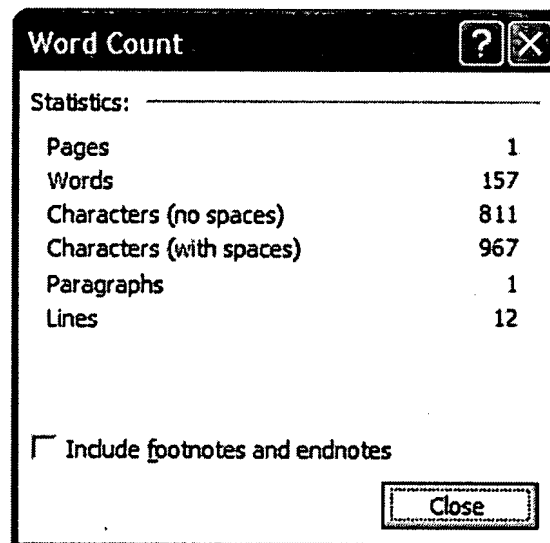
Regarding the abstract:

Applicant's arguments filed 03/29/2007 have been fully considered but they are not persuasive.

The Applicant contends, "Applicants had counted the number of words on the ABSTRACT page, and the number is less 150 words".

The Examiner disagrees, and asserts, that as indicated in the previous Office action "The abstract of the disclosure is objected to because exceed 150 words. Correction is required. See MPEP § 608.01(b)". The Examiner counts 157 words and Microsoft Word also count 157 words in the abstract.

For these reasons, and the reason stated en the previous Office action, the objection to the abstract is maintained.

A method for training a receiving modem is disclosed. The receiving modem can be trained by a sending modem via a four-segment training procedure. During segment 1 training, the sending modem waits for silence on a transmission line between the sending modem and the receiving modem for 48 symbol intervals. Then, the sending modem performs segment 2 training by sending alternating AB symbols to the receiving modem for 64 symbol intervals. During segment 3 training, the sending modem sends CD symbols to the receiving modem for 64 symbol intervals in order to train an equalizer within the receiving modem. During segment 4 training, the sending modem continues to train the equalizer within the receiving modem by sending scrambled binary "1" symbols to the receiving modem for 48 symbol intervals. After a successful completion of the segment 4 training, the receiving modem can change to a data mode to begin detecting and receiving data from the sending modem.

Word Count	? X
Statistics:	
Pages	1
Words	157
Characters (no spaces)	811
Characters (with spaces)	967
Paragraphs	1
Lines	12

☐ Include footnotes and endnotes

Close

Regarding claims 7-12 under 35 USC § 101:

Applicant's arguments filed 03/29/2007 have been fully considered but they are not persuasive.

The Applicant contends, "Claims 7-12 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to a non-statutory subject matter. Applicants respectfully traverse such rejection insofar as it might apply to the claims as amended

herein. Amended Claims 7-12 now recites a "computer usable medium having a computer program product for..." Since a computer usable medium is considered as patentable subject matter, the § 101 rejection is believed to be overcome".

The Examiner disagrees, and asserts, that a computer usable medium having a computer program product code is by definition non-statutory subject of matter.

Claims 7-12 are rejected because they claim data structures not claimed as embodied in computer-readable media, and data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory (emphasis added).

For these reasons, and the reason stated en the previous Office action, the rejection of claims 7-12 are maintained.

Regarding 35 USC § 102:

Applicant's arguments with respect to claim 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because exceed 150 words (see above). Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 7-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 7, claim 7 is rejected because <u>claims data structures not claimed as embodied in computer-readable media</u>, and data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure

per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory (emphasis added).

Regarding claims 8-12, they are rejected because they depend directly from claim 7, and claim is rejected.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5-9, 11-15 and 17-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1, 7 and 13, claims 1, 7 and 13 are rejected under 35 U.S.C. 112, first paragraph because the originally filed specification doesn't disclose that segment 3 includes no more than 64 symbol interval. This is a new matter rejection (emphasis added).

The originally filed specification discloses that "during segment 3 training, the

sending modem sends CD symbols to the receiving modem for 64 symbol intervals in

order to train an equalizer within the receiving modem" (emphasis added).

Regarding claims 2-3, 5-6, 8-9, 11-12, 14-15 and 17-18, they are rejected

because they depend directly from claims 1, 7 and 13 and claims 1,7 and 13 are

rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the ITU-T V.29 (11/88) Recommendation ("9600 bits per second

modem standardized for use on point-to-point 4-wire leased telephone-type circuits",

1988) in view of Hypercom ("FastPOS: High-Speed Modem Technology for Transaction

Terminals", 1998).

Regarding claims 1 and 7, V.29 discloses training a receiving modem comprising

performing segment 1 training by waiting for silence for a first set of symbol intervals

(section 8 pages 7-8, table 5/V.29); performing segment 2 training by sending a plurality

of alternating AB symbols for a second set of symbol intervals (section 8 pages 7-8,

table 5/V.29); performing segment 3 training by sending a plurality of CD symbols for a

third set of symbol intervals to generate a plurality of coefficients for an adaptive

equalizer within said receiving modem (section 8 pages 7-8, table 5/V.29); and

performing segment 4 training by sending a plurality of scrambled binary "1" symbols for

a fourth set of symbol intervals to adjust said plurality of coefficients of said adaptive

equalizer within said receiving modem (section 8 pages 7-8, table 5/V.29). The V.29

doesn't disclose that the third set of symbol intervals includes no more than 64 symbol

intervals. Hypercom (see previous Office action section conclusion) discloses that the

third set of symbol intervals includes no more than 64 symbol intervals (Hypercom page

8 discloses fast training that takes around 100 ms (also discloses that the training of a

V.29 modes takes around 300 ms [in V.29 the exact value is 253 ms] by "remembering

some of the training parameters from the initial training which was a full training

sequence", these parameters are in the phase 3 of equalizer training, because phase 1

and phase 2 are "no transmitting energy" and "alterations" [phase reversal] that

evidently doesn't have any parameter to store, and phase 4 are the scrambled all binary

ONEs, so phases 1 and 2 have to be maintained to maintain the compatibility with V.29

that takes 48+28= 132 symbols= 20+53=73 ms, so to obtain 100 ms total phase 3 have

to take 100-73= 27 ms that taking into account that in phase 3 384 symbol take 160 ms

(see table 5/V.29 in page 7 of V.29), the 27 ms will use 27*384/160= 64, so in the fast

training discloses by Hypercom phase 3 uses 64 or less symbols). V.29 and Hypercom

teachings are analogous art because they are from the same field of endeavor of data

communication over the telephone network. At the time of the invention it would have

been obvious to a person of ordinary skill in the art to incorporate the V.29 modem

disclosed by the V.29 recommendation in the fast training disclosed by Hypercom. The

suggestion/motivation for doing so would have been to reduce the connection time of the modem (Hypercom page 8).

Regarding claims 2 and 8, V.29 and Hypercom disclose claims 1 and 7, V.29 also discloses that the first set of symbol intervals includes 48 symbol intervals (section 8 pages 7-8, table 5/V.29).

Regarding claims 3 and 9, V.29 and Hypercom disclose claims 1 and 7, V.29 also discloses that the second set of symbol intervals includes 64 symbol intervals (section 8 pages 7-8, table 5/V.29, in the V.29 the second segment has 128 symbol intervals, that includes 64 symbol intervals).

Regarding claims 5 and 11, V.29 and Hypercom disclose claims 1 and 7, V.29 also discloses that the fourth set of symbol intervals includes 48 symbol intervals (section 8 pages 7-8, table 5/V.29).

Regarding claims 6 and 12, V.29 and Hypercom disclose claims 1 and 7, V.29 also discloses that performing segment 4 training further includes concurrently verifying a plurality of estimated symbols generated from a subset of said plurality of scrambled binary 1 symbols (section 8 pages 7-8, table 5/V.29).

Claims 1-3, 5-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi (US 5337332 A) in view of Hypercom ("FastPOS: High-Speed Modem Technology for Transaction Terminals", 1998).

Regarding claims 1 and 7, Yaguchi discloses training a receiving modem comprising performing segment 1 training by waiting for silence for a first set of symbol intervals (column 1 line 39 to column 2 line 11 and table 2); performing segment 2

training by sending a plurality of alternating AB symbols for a second set of symbol

intervals (column 1 line 39 to column 2 line 11 and table 2); performing segment 3

training by sending a plurality of CD symbols for a third set of symbol intervals to

generate a plurality of coefficients for an adaptive equalizer within said receiving modem

(column 1 line 39 to column 2 line 11 and table 2); and performing segment 4 training by

sending a plurality of scrambled binary "1" symbols for a fourth set of symbol intervals to

adjust said plurality of coefficients of said adaptive equalizer within said receiving

modem (column 1 line 39 to column 2 line 11 and table 2). Yaguchi doesn't disclose

that the third set of symbol intervals includes no more than 64 symbol intervals.

Hypercom (see previous Office action section conclusion) discloses that the third set of

symbol intervals includes no more than 64 symbol intervals (Hypercom page 8

discloses fast training that takes around 100 ms (also discloses that the training of a

V.29 modes takes around 300 ms [in V.29 the exact value is 253 ms] by "remembering

some of the training parameters from the initial training which was a full training

sequence", these parameters are in the phase 3 of equalizer training, because phase 1

and phase 2 are "no transmitting energy" and "alterations" [phase reversal] that

evidently doesn't have any parameter to store, and phase 4 are the scrambled all binary

ONEs, so phases 1 and 2 have to be maintained to maintain the compatibility with V.29

that takes 48+28= 132 symbols= 20+53=73 ms, so to obtain 100 ms total phase 3 have

to take 100-73= 27 ms that taking into account that in phase 3 384 symbol take 160 ms

(see table 5/V.29 in page 7 of V.29), the 27 ms will use 27*384/160= 64, so in the fast

training discloses by Hypercom phase 3 uses 64 or less symbols). Yaguchi and

Hypercom teachings are analogous art because they are from the same field of endeavor of data communication over the telephone network. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the V.29 modem disclosed by the Yaguchi in the fast training disclosed by Hypercom. The suggestion/motivation for doing so would have been to reduce the connection time of the modem (Hypercom page 8).

Regarding claims 2 and 8, Yaguchi and Hypercom disclose claims 1 and 7, Yaguchi also discloses that the first set of symbol intervals includes 48 symbol intervals (column 1 line 39 to column 2 line 11 and table 2).

Regarding claims 3 and 9, Yaguchi and Hypercom disclose claims 1 and 7, Yaguchi also discloses that the second set of symbol intervals includes 64 symbol intervals (column 1 line 39 to column 2 line 11 and table 2, the second segment has 128 symbol intervals, that includes 64 symbol intervals).

Regarding claims 5 and 11, Yaguchi and Hypercom disclose claims 1 and 7, Yaguchi also discloses that the fourth set of symbol intervals includes 48 symbol intervals (column 1 line 39 to column 2 line 11 and table 2).

Regarding claims 6 and 12, Yaguchi and Hypercom disclose claims 1 and 7, Yaguchi also discloses that performing segment 4 training further includes concurrently verifying a plurality of estimated symbols generated from a subset of said plurality of scrambled binary 1 symbols (column 1 line 39 to column 2 line 11 and table 2).

Claims 13-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the ITU-T V.29 (11/88) Recommendation ("9600 bits per second

modem standardized for use on point-to-point 4-wire leased telephone-type circuits",

1988) in view of Hypercom ("FastPOS: High-Speed Modem Technology for Transaction

Terminals", 1998), and further in view of Dupuis (US 6304597 B1).

Regarding claim 13, V.29 discloses training a receiving modem comprising

performing segment 1 training by waiting for silence for a first set of symbol intervals

(section 8 pages 7-8, table 5/V.29); performing segment 2 training by sending a plurality

of alternating AB symbols for a second set of symbol intervals (section 8 pages 7-8,

table 5/V.29); performing segment 3 training by sending a plurality of CD symbols for a

third set of symbol intervals to generate a plurality of coefficients for an adaptive

equalizer within said receiving modem (section 8 pages 7-8, table 5/V.29); and

performing segment 4 training by sending a plurality of scrambled binary "1" symbols for

a fourth set of symbol intervals to adjust said plurality of coefficients of said adaptive

equalizer within said receiving modem (section 8 pages 7-8, table 5/V.29). The V.29

doesn't disclose that the third set of symbol intervals includes no more than 64 symbol

intervals. Hypercom (see previous Office action section conclusion) discloses that the

third set of symbol intervals includes no more than 64 symbol intervals (Hypercom page

8 discloses fast training that takes around 100 ms (also discloses that the training of a

V.29 modes takes around 300 ms [in V.29 the exact value is 253 ms] by "remembering

some of the training parameters from the initial training which was a full training

sequence", these parameters are in the phase 3 of equalizer training, because phase 1

and phase 2 are "no transmitting energy" and "alterations" [phase reversal] that

evidently doesn't have any parameter to store, and phase 4 are the scrambled all binary

ONEs, so phases 1 and 2 have to be maintained to maintain the compatibility with V.29

that takes 48+28= 132 symbols= 20+53=73 ms, so to obtain 100 ms total phase 3 have

to take 100-73= 27 ms that taking into account that in phase 3 384 symbol take 160 ms

(see table 5/V.29 in page 7 of V.29), the 27 ms will use 27*384/160= 64, so in the fast

training discloses by Hypercom phase 3 uses 64 or less symbols). V.29 and Hypercom

teachings are analogous art because they are from the same field of endeavor of data

communication over the telephone network. At the time of the invention it would have

been obvious to a person of ordinary skill in the art to incorporate the V.29 modem

disclosed by the V.29 recommendation in the fast training disclosed by Hypercom. The

suggestion/motivation for doing so would have been to reduce the conection time of the

modem (Hypercom page 8). The V.29 and Hypercom don't disclose the means for

waiting and the means for receiving. Dupuis discloses means for waiting and the means

for receiving in a standard modem implementation structure (figure 1B column 4 line 27

to column 5 line 36). V.29, Hypercom and Dupuis teachings are analogous art because

they are from the same field of endeavor of data communication over the telephone

network. At the time of the invention it would have been obvious to a person of ordinary

skill in the art to incorporate the modem disclosed by the V.29 and Hypercom in the

modem architecture disclosed by Dupuis. The suggestion/motivation for doing so would

have been to make a standard implementation of the V.29 modem (Dupuis abstract).

Regarding claim 14, V.29, Hypercom and Dupuis disclose claim 13, V.29 also

discloses that the first set of symbol intervals includes 48 symbol intervals (section 8

pages 7-8, table 5/V.29).

Regarding claim 15, V.29, Hypercom and Dupuis disclose claim 13, V.29 also

discloses that the second set of symbol intervals includes 64 symbol intervals (section 8

pages 7-8, table 5/V.29, in the V.29 the second segment has 128 symbol intervals, that

includes 64 symbol intervals).

Regarding claim 17, V.29, Hypercom and Dupuis disclose claim 13, V.29 also

discloses that the fourth set of symbol intervals includes 48 symbol intervals (section 8

pages 7-8, table 5/V.29).

Regarding claim 18, V.29, Hypercom and Dupuis disclose claim 13, V.29 also

discloses that performing segment 4 training further includes concurrently verifying a

plurality of estimated symbols generated from a subset of said plurality of scrambled

binary 1 symbols (section 8 pages 7-8, table 5/V.29).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

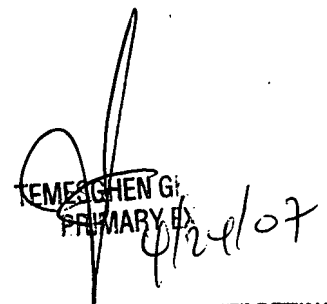extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is 571-272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres
04-04-2007

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER